

REMARKS

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, claims 1, 16 and 20 have been amended to correct typographical errors therein.

Applicants believe that the above changes answer the Examiner's objection to claims 1 and 16, and respectfully request withdrawal thereof.

The Examiner has rejected claims 1, 16 and 19 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 7,006,636 to Baumgarte et al. The Examiner has further rejected claims 20-22 under 35 U.S.C. 103(a) as being unpatentable over Baumgarte et al. in view of U.S. Patent 5,774,844 to Akagiri.

The Baumgarte et al. patent discloses coherence-based audio coding and synthesis, in which an audio signal is encoded and transmitted, along with binary cue coding (BCC) parameters, to a receiver which, using the encoded audio signal and the BCC parameters, generates a stereo signal.

As claimed in claim 1 (as well as claim 16), the subject invention includes the limitations "transforming the wideband time domain input audio signal to a sub-band domain input signal comprising a plurality of input sub-band signals, the input sub-band signals in a first frequency range of the wideband frequency range having a narrower frequency band than the input sub-band signals in a second frequency range of the wideband frequency range", "delaying the sub-band signals so as to obtain delayed sub-

band signals", "deriving a first and a second processed sub-band signal by mixing a sub-band signal and a corresponding delayed sub-band signal" and "inverse transforming the first processed sub-band signals so as to obtain the left hand audio signal component of the wideband time domain output audio signal, and inverse transforming the second processed sub-band signals so as to obtain the right hand audio signal component of the wideband time domain output audio signal".

As noted in MPEP §2131, it is well-founded that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Further, "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The Examiner has indicated that Baumgarte et al. teaches:

"transforming the wideband time domain input audio signal to a sub-band domain input signal comprising a plurality of input sub-band signals (Fig 4, TF transforms), the input sub-band signals in a first frequency range of the wideband frequency range having a narrower frequency band than the input sub-band signals in a second frequency range of the wideband frequency range (Col 6 lines 25-31, critical bands inherently cover frequency ranges varying in width, with the higher bands wider)".

Applicants submit that while Baumgarte et al. does teach "transforming the wideband time domain input audio signal to a sub-band domain input signal comprising a plurality of sub-band signals" (while the Examiner indicates Fig 4, TF transforms, actually, Fig 5 showing TF transform 502 transforming the mono signal is more appropriate), there is no disclosure or suggestion of "the input sub-band signals in a first frequency range of the wideband frequency range having a narrower frequency band than the input sub-band signals in a second frequency range of the wideband frequency range". In particular, Baumgarte et al., at col. 6, lines 25-35, states:

"Each transform block generates a number of outputs corresponding to different frequency sub-bands of the input audio signals. Coherence estimator 406 characterizes the coherence of each of the different sub-bands and averages those coherence measures within different groups of adjacent sub-bands corresponding to different critical bands. Those skilled in the art will appreciate that, in preferred implementations, the number of sub-bands varies from critical band to critical band with lower-frequency critical bands have fewer sub-bands than higher-frequency critical bands."

Applicants first would like to point out that this section of Baumgarte et al. is describing the generation of the coherence measures (BCC parameters), and not the processing of a wideband time domain input audio signal. Further, Baumgarte et al. merely states that the number of sub-bands in lower frequency critical bands are fewer than the number of sub-bands in higher frequency critical bands. However, since higher frequency bands typically have wider frequency ranges than lower frequency bands, this would lead one skilled in the art to assume that in Baumgarte et al., the

sub-bands have the same or similar frequency ranges. While, as noted by the Examiner, "critical bands inherently cover frequency ranges varying in width, with the higher bands wider", the subject limitation is concerned with the frequency ranges of the sub-bands, and as such, the limitation is not taught by Baumgarte et al.

As noted by the Examiner, Baumgarte et al. discloses delaying the sub-band signals, and differentially weighting left and right frequency components. However, claim 1 includes the limitation "deriving a first and a second processed sub-band signal by mixing a sub-band signal and a corresponding delayed sub-band signal".

Baumgarte et al. at col. 7, lines 41-50, states:

"According to the audio synthesis processing described in the '877 and '458 applications, prior to the frequency components being applied to inverse TF transforms 506 and 508, weighting factors w_L and w_R are applied to the left and right frequency components, respectively, in each sub-band in order to move the corresponding auditory object left or right in the synthesized auditory scene. In order to maintain constant audio signal energy, the weighting factors are preferably selected such that Equation (7) applies as follows: $w_L^2 + w_R^2 = 1$. (7)"

Applicants submit that from the above, Baumgarte et al. teaches differentially weighting the left and right frequency components. However, there is no disclosure or suggestion deriving the first and second processed sub-band signal by mixing a (undelayed) sub-band signal and a corresponding delayed sub-band signal.

The Akagiri patent discloses methods and apparatus for quantizing, encoding and decoding and recording media therefor. However, Applicants submit that Akagiri does not supply that which is missing from Baumgarte et al., i.e., "transforming the wideband time domain input audio signal to a sub-band domain input signal comprising a plurality of input sub-band signals, the input sub-band signals in a first frequency range of the wideband frequency range having a narrower frequency band than the input sub-band signals in a second frequency range of the wideband frequency range", "delaying the sub-band signals so as to obtain delayed sub-band signals", "deriving a first and a second processed sub-band signal by mixing a sub-band signal and a corresponding delayed sub-band signal" and "inverse transforming the first processed sub-band signals so as to obtain the left hand audio signal component of the wideband time domain output audio signal, and inverse transforming the second processed sub-band signals so as to obtain the right hand audio signal component of the wideband time domain output audio signal".

In view of the above, Applicants believe that the subject invention, as claimed, is neither anticipated nor rendered obvious by the prior art, and as such, is patentable thereover.

Applicants believe that this application, containing claims 1, 16 and 19-22, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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